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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,123	03/27/2001	Frank Sauer	2001P05535US	8633

7590 03/14/2007
Siemens Corporation
Intellectual Property Department
186 Wood Avenue South
Iselin, NJ 08830

EXAMINER

GOOD JOHNSON, MOTILEWA

ART UNIT PAPER NUMBER

2628

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/14/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 09/818,123	Applicant(s) SAUER, FRANK	
	Examiner Motilewa Good-Johnson	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 31-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 31-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892). | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 31-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Billingham et al., *The Expert Surgical Assistant: An Intelligent Virtual Environment with Multimodal Input*, Proceedings of Medicine Meets Virtual Reality IV, pp. 590-607, in view of Simon, U.S. Patent Number 6,470,207.

Regarding claim 31, Billingham discloses a method for augmented reality guided positioning of a real instrument tip within a real target located in a real object (abstract) comprising the steps of: presenting an augmented reality view by overlaying a virtual graphics guide onto a real view of the real object and a real instrument (figure 2.0, pp. 596), the graphics guide comprising a virtual depth marker located outside of the real object (figure 2.0, pp. 596); aligning the real instrument to the graphics guide (pp. 595, navigation and instrument location)

However, it is noted that Billingham fails to disclose inserting the instrument to a depth determined in the augmented view by alignment of a predetermined real feature of the real instrument with the virtual depth marker (page 595), the feature being located

along the length of the real instrument at a certain distance from the real instrument tip, and remains external to the real object during insertion (page 595-596)

Simon disclose inserting the instrument to a depth determined in the augmented view by alignment of a predetermined feature of the instrument with the virtual depth marker (col. 9, lines 51-65), the feature being located along the length of the instrument at a certain distance from the instrument tip, and remains external to the object during insertion (figure 10)

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in the real instrument and real object augmented positioning as discloses by Billinghurst, the insertion of the instrument to a depth determined by a alignment feature along the length of the instrument, as disclosed by Simon, to allow for medial training applications and navigational assistance in critical anatomical structures.

Regarding claim 32, Billinghurst discloses determining an optimal location for the real instrument with respect to the real target (page 595, paragraph 2, optical tracking for instrument location); calculating the proximity of the predetermined portion of the instrument to the target based on the optimal location and the geometry of the instrument (page 596); using the proximity calculation to determine the position of the virtual depth marker on the graphics guide (page 596)

Regarding claim 33, Simon discloses the proximity calculation comprises a range a proximity measurements (col. 7, lines 45-65)

Regarding claim 34, Simon discloses the proximity calculation corresponds to a final forward position of the predetermined portion of the instrument with respect to the target (col. 9, lines 25-28)

Regarding claim 35, Simon discloses the proximity calculation corresponds to a distance between the virtual depth marker and a point within the target (col. 9, line 51 – col. 10, lines 9)

Regarding claim 36, it is rejected based upon similar rational as above claim 31. Simon further discloses an apparatus for augmented reality guided instrument positioning of an instrument tip within a target located in an object comprising: a virtual graphics guide generator and positioned for generating and positioning a virtual graphics guide (figure 10), the graphics guide comprising a virtual depth marker located outside of the object; and a rendering device (120, computer, which Examiner interprets as a rendering device) for rendering the virtual graphics guide onto a real view of the object and an instrument (col. 8, lines 30-36) such that the instrument can be inserted to a depth determined in the augmented view by alignment of a predetermined feature of the instrument with the virtual depth marker (col. 9, lines 16-25) inserting the instrument to a depth determined in the augmented view by alignment of a predetermined real feature of the real instrument with the virtual depth marker (page 595), the feature being

located along the length of the real instrument at a certain distance from the real instrument tip, and remains external to the real object during insertion (page 595-596)

Regarding claim 37, Billinghurst discloses wherein said virtual graphics guide generator and positioned determines an optimal location for the real instrument with respect to the real target (figure 2.0, pp. 596), and calculates the proximity of said predetermined portion of the real instrument to the real target based on the optimal location and the geometry of the real instrument (page 596, calculates paths to an object and a safe trajectory for instrument movement, showing a safe route to an organ)

Regarding claim 38, Simon discloses the proximity comprises a range of proximities and said virtual graphics guide generator and position determined an optimal range of locations for the predetermined portion of the instrument with respect to the target (col. 7, lines 45-65) and calculates the range of proximities of the predetermined portion of the instrument to the target based on the optimal range and the geometry of the instrument (col. 9, line 51 – col. 10, lines 9)

Regarding claim 39, Simon discloses the proximity corresponds to a final forward position of the predetermined portion of the instrument with respect to the target (col. 9, lines 25-28)

Regarding claim 40, Simon discloses a display device (121, col. 8, lines 31-33) to display the augmented view rendered by the rendering device to the user.

Response to Arguments

3. Applicant's arguments, see page 5-6, filed 11/13/2006, with respect to the rejection(s) of claim(s) 31-20 under Simon have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Billingham in view of Simon.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Motilewa Good-Johnson whose telephone number is (571) 272-7658. The examiner can normally be reached on Monday, Tuesday and Wednesday 9:00 AM - 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Motilewa Good-Johnson
Examiner
Art Unit 2628

mgj



KEE M. TUNG
SUPERVISORY PATENT EXAMINER